



QUANTUM OPTICS SEMINAR

- Title:** Atom Sagnac interferometry beyond the standard quantum limit
- Speaker:** Philipp Hyllus, Institute of Theoretical Physics, University of Hannover, Germany
- Time:** Tuesday, September 28, 2004, 11:15-12:00
- Place:** 520-731

Abstract:

Atom interferometers are well suited to measure rotational Sagnac phase shifts with a relatively small set up. Two ensembles of atoms pass such an interferometer from opposite sites, yielding two phases from which the rotational phase can be obtained.

We discuss possibilities of improving the resolution of such devices by using squeezed input states. In particular, we compare the following cases: (i) separately squeezed ensembles, (ii) two components of the collective spin vectors of the ensembles squeezed together, and (iii) two times two components squeezed together, corresponding to an EPR entangled state.

Klaus Mølmer